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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,465	02/20/2004	Lewis R. Dove	10020706-1	7444

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EXAMINER

LEE, BENNY T

ART UNIT PAPER NUMBER

2817

DATE MAILED: 01/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/783,465

Applicant(s)

DOVE ET AL.

Examiner

Benny Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 22; 9, 23; 10-15, 24; 16-21, 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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The disclosure is objected to because of the following informalities: Pages 7, 8, paragraphs [0021] & [0022], note that the following recitations should be rewritten for clarity: “cut 402”; “mount 404”; “place 408”; “select 502”; “mount 504”; “couple 506”; “place 508”. Appropriate correction is required.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the ribbon bond (e.g. cls 2, 11), the mesh bond (e.g. cls 3, 12) and the plurality of wire bonds (e.g. cls 4, 13), respectively must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claims 1-8, 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, note that it is unclear if “a ground shield” is properly characterized as being “in a direction transverse to the conductor” and still surround the dielectric layers. From the disclosure, it appears that portions of the ground shield are also parallel to the conductor. Clarification is needed.

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The following claims have been found objectionable for reasons set forth below:

In claim 1, line 6, note that “its” (first occurrence) should be rewritten as --the respective -- and “its” (second occurrence) should be rewritten --the corresponding-- for an appropriate characterization.

In claims 9, 10, 16, line 2 of each claim, note that a --:-- should follow “comprising” (i.e. line 1 of each claim) for a proper characterization.

In claim 9, line 8 and claim 10, line 13, note that --corresponding-- should precede “microwave module”

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 22; 9, 23; 10, 24; 16, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishihara (of record) in view of Arledge et al.

Ishihara discloses a microwave circuit comprising: a first module (100); a second module (200); wherein each module includes a conductor (1) sandwiched between thick dielectrics (2, 3) and ground shields (4, 5) surrounding dielectrics (2, 3). Moreover, a cut edge or notch (6) is formed in the upper dielectric (3) of each module (100, 200) and the notches are arranged to face

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each other. Note that a small piece (7) includes a bridging conductor (11), which has a ground shield layer or cap (51) disposed over the bridging conductor. Furthermore, note that the small piece (7) is disposed such that bridging conductor (11) electrically interconnects conductors (1) of modules (100, 200) while the ground shield cap (51) electrically connects with ground shield (5). However, Ishihara et al does not disclose the ground shield being transverse to the conductor along the lateral edges of the microwave circuit. Furthermore, Ishihara does not disclose the mounting of the microwave circuits relative to an underlying substrate.

Arledge et al (Fig. 1) discloses an exemplary teaching of a planar microwave circuit, in which ground plane shielding is provided along the lateral edges of the microwave circuit as well as at top and bottom surfaces of the microwave circuit, to thereby prevent signal leakage along the lateral edges of the microwave circuit. Moreover, Arledge et al further discloses the mounting of the fully shielded microwave circuit on a substrate.

Accordingly, regarding claim 1, it would have been obvious in view of the references, taken as a whole, to have modified each planar microwave circuit arrangement of Ishihara with an additional lateral ground plane shield, such as exemplarily taught by Arledge et al. Such a modification would have been considered obvious since it would have imparted to the Ishihara microwave circuits, the advantageous benefits of additional lateral edge shielding, thereby reducing signal leakage from the lateral sides of the microwave circuit, as exemplarily taught by Arledge et al, thereby suggesting the obviousness of such a modification

Accordingly, regarding claims 9, 10, 16, it would have been obvious in view of the references, taken as a whole, to have modified the Ishihara modules (100, 200) to have been

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mounted on substrates, such as conventionally taught/suggested by Arledge et al, thereby suggesting the obviousness thereof.

Claims 2, 4; 11, 13; 17, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the above rejection as applied to claims 1, 10, 16, respectively above, and further in view of Cox et al (of record).

Note that for each of the above rejections, Ishihara discloses the claimed invention except for the bridging conductor being a ribbon or plural wires.

Accordingly, in view of the teaching in Cox et al, it would have been obvious to have replaced the bridging conductor (11) in Ishihara by an alternative yet equivalent bridging means such as the ribbon/plural wires taught by Cox et al, thereby suggesting the obviousness of such a modification.

Claims 3; 12; 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the above rejection as applied to claims 10, 16, respectively above, and further in view of Drapeau et al (of record).

Note that for each of the above rejections, Ishihara discloses the claimed invention except for the bridging conductor being a conductive mesh.

Accordingly, in view of the teaching in Drapeau et al, it would have been obvious to have replaced the bridging conductor (11) of Ishihara by an alternative yet equivalent bridging means such as the conductive mesh (80) conventionally taught by Drapeau et al, thereby suggesting the obviousness of such a modification.

Claims 5-8; 14, 15; 20, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the above rejection as applied to claims 10, 16, respectively above, and further in view of Dove et al ('979), of record.

Ishihara as modified by Arledge et al discloses the claimed invention except for soldering or conductive epoxy bonding of the ground shielding cap to the grounding shield (5). Also, Ishihara differs from the claimed invention in that a ceramic substrate and KQ dielectrics are unspecified.

Dove et al discloses that the use of soldering or conductive adhesive (e.g. epoxy) for the shielding conductor is conventional (e.g. col 5, ls 17-19). Moreover, Dove et al discloses that ceramic substrate (10) is conventional for use with transmission line (9) and that KQ dielectrics (12, 14) are conventional in the art.

Accordingly, it would have been obvious to have: realized the dielectrics of the modules (100, 200) as being KQ dielectrics; realized the substrate as a ceramic; and realized that soldering or conductive adhesive of ground shield portions is conventional. Such modifications would have been considered obvious in view of the conventional nature of such materials and techniques for use in such modules, thereby suggesting the obviousness of such modifications.

Applicant's arguments filed 31 October 2005 have been fully considered but they are not persuasive.

Applicants' have essentially argued that none of the prior art of record, especially Ishihara, discloses the ground shield surrounding the first and second dielectrics. In particular, it is pointed out that Ishihara has only ground planes on top and bottom surfaces of the dielectric with no shielding along the sides of the dielectrics and thus is not shielded in a direction

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transverse to the conductor. Additionally, applicants have argued that the prior art of record, especially Ishihara, fails to disclose an “ground shield cap” coupled to the upper or second shield of the microwave circuits.

In response, the examiner acknowledges that Ishihara does not disclose ground shielding which extends along the lateral edges of the microwave circuit to extend in a direction transverse to the conductor. Accordingly, in view of such a deficiency in Ishihara, the examiner has added the Arledge et al reference, which recognizes the benefits of a fully shielded microwave circuit in terms of reduced signal leakage. Accordingly, as set forth in the above obviousness combination, it would have been obvious to have added transverse oriented ground planes to the lateral edges of the microwave circuits of Ishihara to have provided the advantageous benefit of reducing leakage from otherwise unshielded lateral edges. As for the grounded shield cap, it should be noted that the element containing the bridging conductor (11) includes a dielectric piece (31), which has a ground plane layer (51) disposed on an opposite surface thereof, which corresponds to the claimed “grounded shield cap”. Moreover, when the bridging conductor is inserted to connect the microwave circuits, the ground plane layer must necessarily be in electrical contact with the upper ground plane (5) of each microwave circuit.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

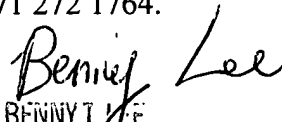
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Benny Lee at telephone number 571 272 1764.

B. Lee


BENNY T. LEE
PRIMARY EXAMINER
ART UNIT 2817